Phonetics and Phonology

Peter Bojo

Phonetics

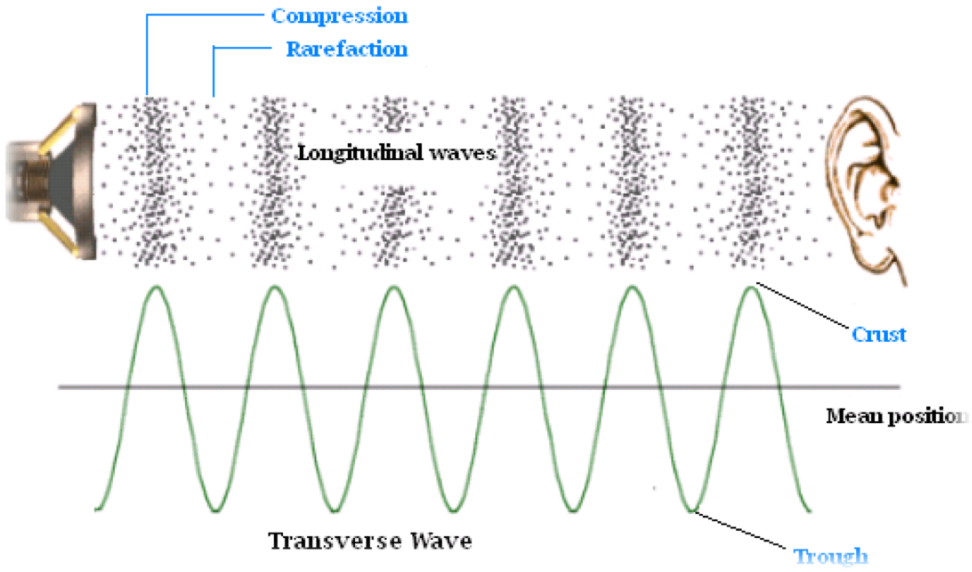
Branch of linguistics studying:

- Speech sounds
- Their production
- Transmission
- Reception
- Description
- Written representation

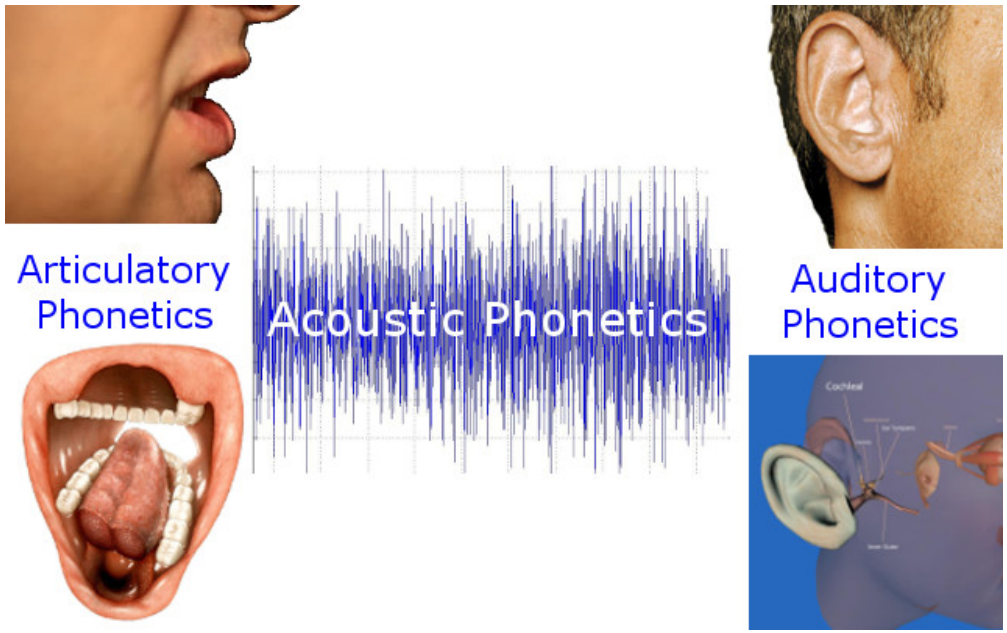
Phonetics – 3 branches

- Acoustic
- Auditory
- Articulatory

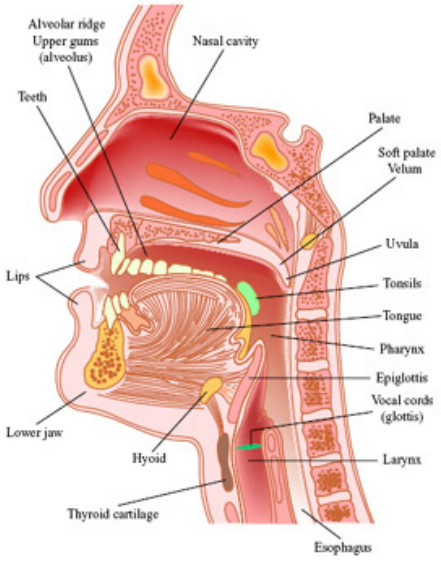
- **Acoustic phonetics** – sound analysis from the point of view of its frequency, intensity, duration and acoustic quality, also transmission of the **waves** from the mouth to the ear

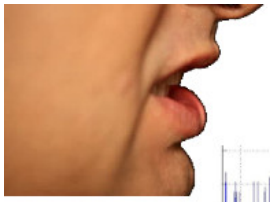


- **Auditory phonetics** – how the sound is received by the ear, processed by the organs of hearing and analysed in the listener´s brain. I describes the structure and function of the ear

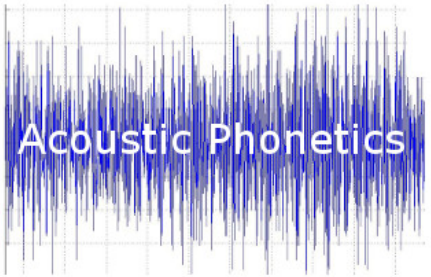


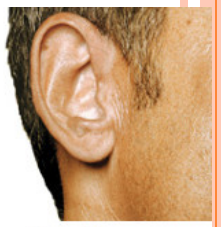
- **Articulatory phonetics:** organs participating in sound production (how the vocal cords vibrate, the degree of the physical effort, the position of the articulatory organs, and the timing of their movement



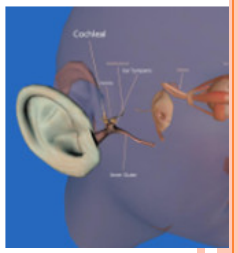


Articulatory Phonetics



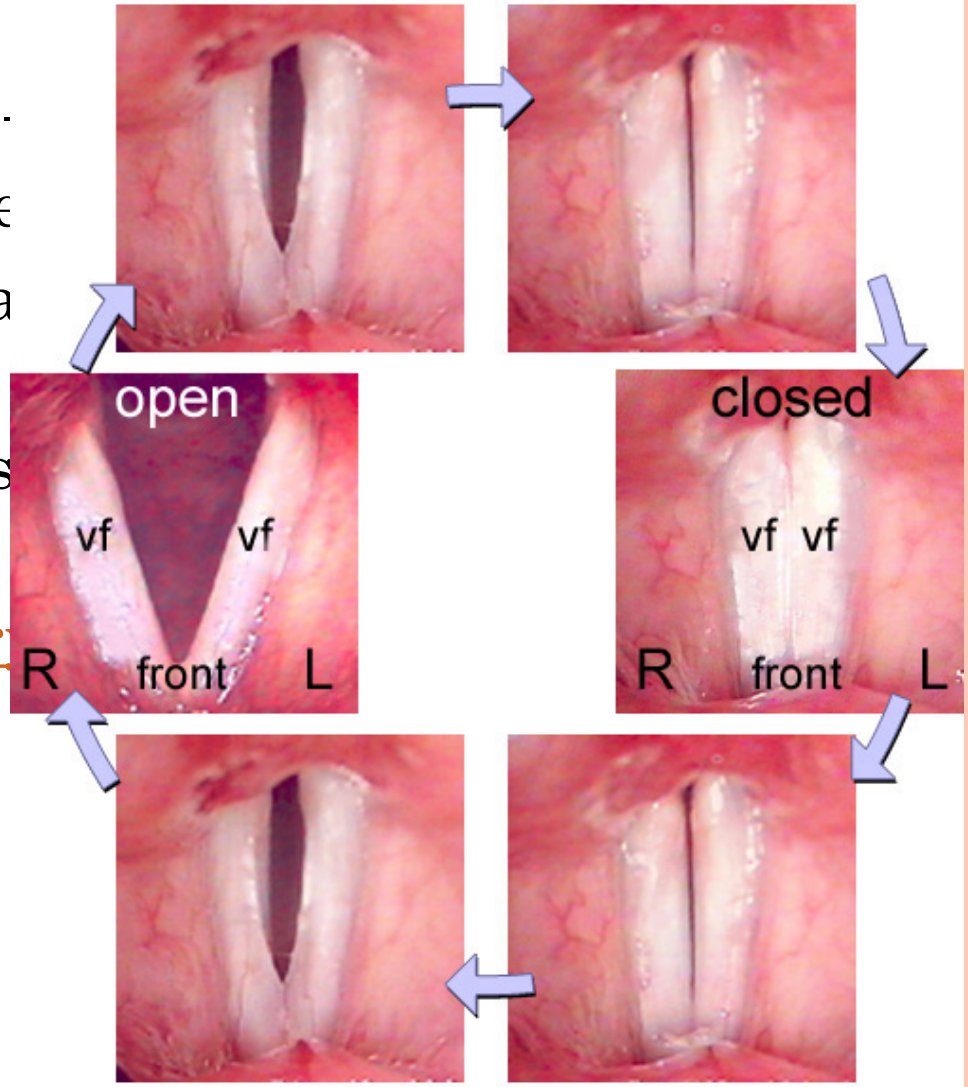


Auditory Phonetics



Positions of vocal cords

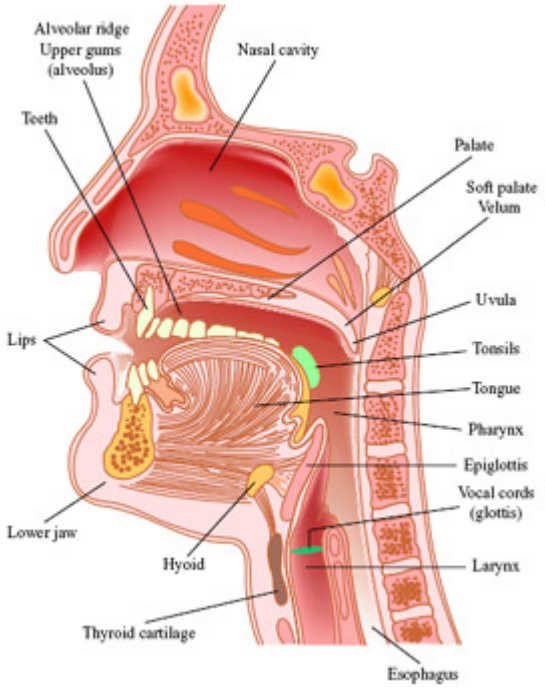
- Closed (closing the glottis
- Loosely together – produce
- Loosely together and vibra sounds
- Open – produce voiceless s
- http://alejandronunez-a-3.blogspot.sk/p/articulator



- Laryngoscopy – vocal cords in action
- http://www.youtube.com/watch?v=iYpDwhpILkQ

Consonants

- Produced by the obstruction in the voiced area
- Classified according to the place and matter of articulation into:

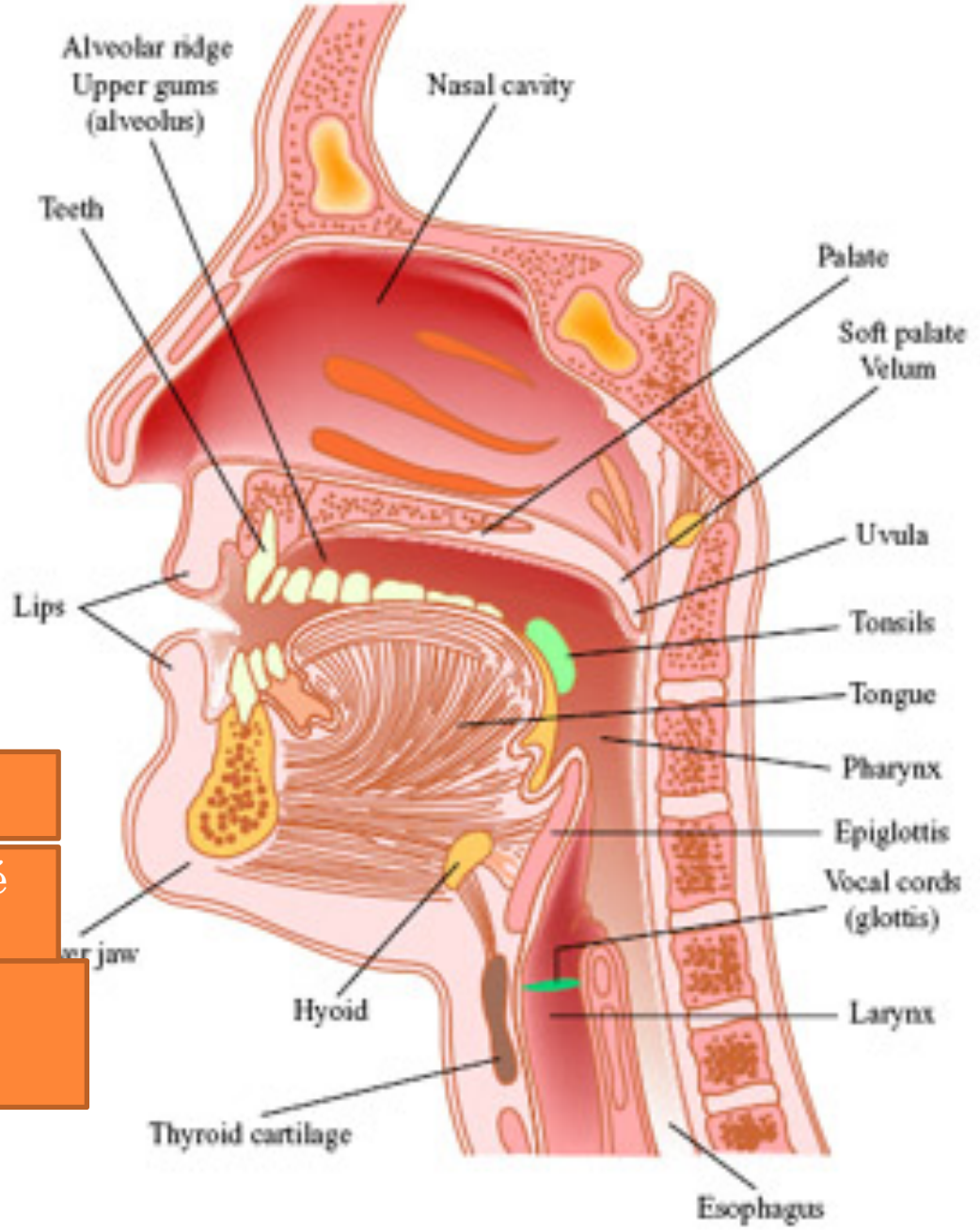


- Bilabial
- Dental
- Labiodental
- Alveolar
- Audio-palatal
- Palatal
- Velar
- glottal

Palate - podnebie

Velum – mäkké podnebie

Glottis – hlasivková štrbina



- **Bilabial:** the lower lip articulates with the upper lip (voiced */b/*)
- **Dental:** the tongue tip articulates with the top teeth /voiced sound */ð/*, voiceless /θ/
- **Labiodental:** The lower lip articulates with the upper teeth (voiceless /f/, voiced /v/

- **Alveolar:** The tongue tip articulates with the alveolar ridge (voiced */d/*, */z/*, */n/*, */l/*, */r/*
- Alveo-palatal: The tongue (excluding the tip) makes simultaneous contact with the alveolar ridge and the hard palate (voiceless */tʃ/* and */ʃ/*, voiced */dʒ/* and */ʒ/*

- **Palatal:** The tongue blade articulates with the hard palate */j/*
- **Velar:** The tongue back articulates with the velum (soft palate) – voiced */g/* and */ŋ/*, voiceless */k/*
- **Glottal:** The tongue and other parts of the mouth are inactive and the air passes through the constricted glottis – glottal sound /h/

Manner of articulation of consonants

- **Plosives** (stops): These are made by completely blocking the air-stream at some point in the oral cavity (voiceless */p/*, */t/*, */k/*, voiced */b/*, */d/*, */g/)*
- **Affricates**: These are complex sounds, consisting of a stop followed immediately by a fricative at the same place of articulation. The stop is gradually releases so as to form a narrow constricted gap for the air to flow through (voiceless */tʃ/* and voiced */dʒ /*

- **Fricatives:** These are made with a very narrow gap between the articulators. The air-stream passes through this gap under pressure which causes friction (voiceless /f/, /θ/, /s/, /ʃ/ and voiced /v/, /ð/, /z/, /ʃ/, /ʒ/, /h/
- **Nasals:** The air-stream flows out through the nose as a result of the lowered velum /voiced /m/, /n/ and /ŋ/

- Approximants: articulated with minimal constriction, consequently, there is virtually no friction (/r/, /l/, /j/, /w/). The proximants are subdivided into:
- http://www.youtube.com/watch?v=luYZnqmjWaI

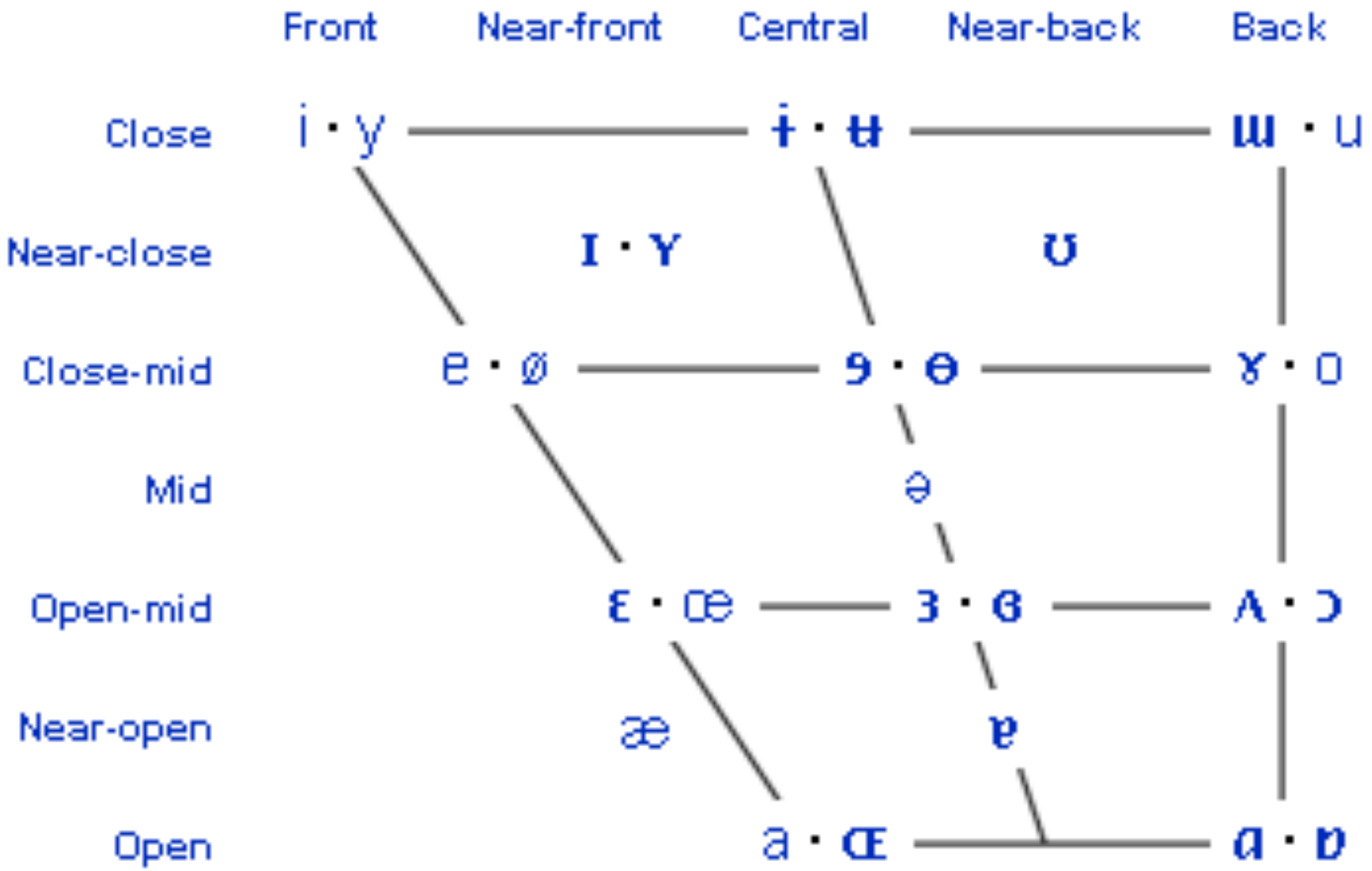
Proximants

- Liquids: The air-stream escapes around one or both sides of the tongue. The tip of the tongue forms a complete closurre against the alveolar ridge (/l/, /r/).
- Glides: the semi-vowels produced with the tongue that transmites (glides) from one sound to another (/w/ and /j/).
- Trills: One articulator is made to vibrate by means of the outflowing air stream. (Slovak ŕ)- tongue vibrating under the alveolar ridge

Vowels

- Made with relatively free air stream flow
- Classified according to the tongue position into: (1) FRONT, (2) BACK
- Classified according to the position of mandible: (1) high, (2) low – vertical and horizontal

Cardinal vowel scheme



/J/ AND /W/ - SEMI-VOWELS

- Because they have no obstruction and no audible friction

Vowels may combine into

- Diphtongs – closing /*ei*/, /*əu*/, /*ɑu*/, /*ɑi*/, /*oi*/, centering /*iə*/, /*eə*/, /*ʊə*/
- Tripthtongs – 5 tripthtongs: /*ɑiə*/, /*ɑuə*/, /*oiə*/, /*əuə*/, /*eiə*/

Phonology

- Deals with the description of abstract idealized sounds that wee have in our min
- The smallest abstract unit distinguishing meaning is called a phoneme /it is the class of possible realization of sounds. The sound is its actual realization in the speech.

Binary opposition of phonemes

- Trubetzkoy – „Grundzuge der Phonologie“ (principles of phonology 1939
- Theory based on the notion of distincive features on the basis of which the phonemes create opposition with one another

Assimilation

- Related to the sequence of two phonemes in which one of them takes the features of the other You can
- */kæn/*, */kən/*, but if the velar */g/* follows, e.g. You can guess, you can go/, it influences the preceding phoneme, which, consequently becomes velar /ŋ/ instead of alveolar */n/…/jukəŋges/*

Types of assimilation

- **External** – example on the previous slide
- **Internal** – sounds assimilated within a single word gunpoint */n/* is realized as */m/* because of the following bilabial */p/*
- **Regressive** – the examples mentioned above, called regressive because the following phonemes influence the preceding ones
- **Progressive** – a phoneme is affected by a preceding one. Thus, voicing of e.g. final consonants influences the pronunciation of the plural ending s (bets - /bets/, or /betz/

Linking and elision in connected speech

- Linking – resulting from mutual influence sounds in connected speech. The linking /r/ is sometimes used to link two words, the first one ending and second one starting with a vowel, as for instance far away /ˌfɑː.rəˈweɪ/ or intrusive /r/, e.g. formula A /ˈfɔː.mjʊ.lərei/
- Linking w – so important /səʊwɪmˈpɔː.t ə nt /
- Linking /j/ - in day and night /deɪjəndnaɪt/

Help with Listening Linking (2): /w/, /j/ and /r/ sounds

a) R4.12 Listen to these sentences from the interview. Notice the linking sounds.

The doctor wasn't happy /j/ about it, but she /j/ agreed in the /j/ end.

How /w/ often did you /w/ and Kaz have to do /w/ all of this?

No, there /r/ isn't a scar /r/ anywhere /r/ on her body.

Elision

- Sound phenomenon related to the disappearance of a sound
- due to its use in a cluster of consonants (next day */neksdeɪ/*
- after certain consonants (potatoes pəˈteɪ.təʊz/
- In the middle of some words (cabinet /ˈkæb.ɪ.nət/)

Segmentation of speech

- Speech consists of a stretch of vowels and consonants
- Larger segments – syllables (basic rhythmical unit)
- The syllable usually consists of : 1. onset (consonant, 2. the centre (vowel, also called peak), 3. termination (consonant, also called coda)

- Classical model – CVC (sit)
- Zero onset – VC (it)
- Zero termination – CV (to)
- Clusters – CCVCC (trust), bi-syllabic word result – CV-CVCC, etc.

- **Stressed syllable** – at least one syllable at each word is stressed (prominent) – pronounced with greater intensity
- Longer words have two types of stress – **primary and secondary**
- **Suprasegmental feature of an utterance** – stress operates suprasegmentally within an utterance
- **Rhythm**
- **Pitch** – the level of voice produced by different tension in our vocal cords (when the vocal cords vibrate more quickly the pitch is higher)
- **Intonation** – the combination of stress, pitch and length, (pattern of tones over speech)

- 5 types of tones in English
- Fall (I am thirsty
- Rise (Are you ready?)
- Rise-fall (You or me?
- Level (one, -two, - three..)


Phonemic chart
Vowel sounds
ə father ago
æ apple cat
ʊ book could
ɒ on got
ɪ in swim
i friendly
e bed any
ʌ cup under
ɜː her shirt
ɑː arm car
uː blue too
ɔː born walk
iː eat meet
eə chair where
ɪə near we're
ʊə mature tour
ɔɪ boy noisy
aɪ nine eye
eɪ eight day
əʊ go over
aʊ out brown
Consonant sounds
p park soup
b be rob
f face laugh
v very live
t time white
d dog red
k cold look
g girl bag
θ think both
ð mother the
tʃ chips teach
dʒ job page
s see rice
z zoo days
ʃ shoe action
ʒ television
m me name
n now rain
ŋ sing think
h hot hand
l late hotel
r marry write
w white we
j you yes

Phonemic chart online with pronunciation (by British council)

- http://www.teachingenglish.org.uk/article/phonemic-chart

Homework – trnscribe the following words

- Father, ago
- Apple, cat
- Book, could
- On, got
- In, swim
- Friendly
- Bed, any
- Cup, under
- Her, shirt
- Arm, car
- Blue, too
- Born, walk
- Eat, meat

- Chair, where
- Near
- Mature, tour
- Boy, noisy
- Nine, eye
- Eight, day
- Do, over
- Out, brown
- Think, both,
- Another, the
- Chips, teach
- Job, page
- Shoe, action
- Television

Thank you!

pbojo@cambridge.org